

THE DS1 COMET MISSION

BY

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The NASA Deep Space 1 spacecraft flew by asteroid Braille in July 1999 and is now on its way to additional encounters with Comets Wilson Harrington and Borrelly. The Braille encounter provided multispectral data on the asteroid which yielded an S-type classification. Similar remote sensing and radio science experiments are planned for the future comet and asteroid encounters.

The startracker on the DS1 mission failed in November of 1999. The faster, better, cheaper spacecraft carried no backup startracker unit. Therefore, the spacecraft engineering team designed and is demonstrating a technique which permits spacecraft orientation to be maintained by a combination of earth pointing of the high gain antenna supported by images of stars taken with the spacecraft camera. This technique, if successful, will be utilized to thrust the spacecraft's ion propulsion system to the comet encounters.

This work was carried out at the Jet Propulsion Laboratory, under contract to the National Aeronautics and Space Administration.